

IN THE CLAIMS:

Claim 1 (canceled).

Claim 2 (canceled).

Claim 3 (canceled).

Claim 4 (canceled).

Claim 5 (withdrawn): A food preserving device comprising:

a cooling box (1);

a conductive food tray (2) housed in the cooling box (1);

an AC power supply (3) used for applying an AC voltage to the food tray (2);

and

a DC power supply (4) used for applying a DC voltage to the food tray (2),

wherein

a control means for applying the AC voltage and the DC voltage are simultaneously applied to the food tray (2) for a predetermined time period; and

and then applying one of the AC voltage or the negative DC voltage to the food tray for another predetermined time period

the DC voltage is a negative voltage.

Claim 6 (withdrawn): The food preserving device according to claim 5, further comprising a control unit (5) that controls a voltage application to the food tray (2) by the AC power supply (3) and the DC power supply (4).

Claim 7 (withdrawn): The food preserving device according to any one of claims 5 and 6, wherein after a DC-AC simultaneous application period during which the AC voltage and the DC voltage are simultaneously applied, only one of the DC voltage and the AC voltage is applied to the food tray (2) by the control unit (5).

Claim 8 (withdrawn): The food preserving device according to any one of claims 5 and 6, wherein the cooling box (1) functions as a freezer for freezing the food (9).

Claim 9 (withdrawn): The food preserving device according to claim 7, wherein the cooling box (1) functions as a freezer for freezing the food (9).

Claim 10 (withdrawn): The food preserving device according to any one of claims 5 and 6, wherein the cooling box (1) functions as a refrigerator for refrigerating the food (9).

Claim 11 (withdrawn): The food preserving device according to claim 7, wherein the cooling box (1) functions as a refrigerator for refrigerating the food (9).

Claim 12 (canceled).

Claim 13 (canceled).

Claim 14 (canceled).

Claim 15 (canceled).

Claim 16 (canceled).

Claim 17 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);

placing meat or seafood (9) on the food tray (2) as the food (9); and

cooling the meat or seafood (9), said cooling of the meat or seafood (9)

comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the meat or seafood (9), an AC voltage of 755 V or higher and a DC voltage of -970 V or greater than that towards minus side thereof are applied to the food tray (2),

in the second cooling phase of the meat or seafood (9), an AC voltage and a DC voltage are applied to the food tray (2), and

in the third cooling phase of the meat or seafood (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.

Claim 18 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);

placing meat or seafood (9) on the food tray (2) as the food (9); and

cooling the meat or seafood (9), said cooling of the meat or seafood (9) comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the meat or seafood (9), an AC voltage of 755 V or higher and a DC voltage of -970 V or greater than that towards minus side thereof are applied to the food tray (2),

in the second cooling phase of the meat or seafood (9), an AC voltage or a DC voltage is applied to the food tray (2), and

in the third cooling phase of the meat or seafood (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.

Claim 19 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);

placing vegetables or fruits (9) on the food tray (2) as the food (9); and

cooling the vegetables or fruits (9), said cooling comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the vegetables or fruits (9), an AC voltage of 180 V or higher and a DC voltage of -180 V or greater than that towards minus side thereof are applied to the food tray (2),

in the second cooling phase of the vegetables or fruits (9), an AC voltage and a DC voltage are applied to the food tray (2), and

in the third cooling phase of the vegetables or fruits (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.

Claim 20 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);  
placing vegetables or fruits (9) on the food tray (2) as the food (9); and  
cooling the vegetables or fruits (9), said cooling comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the vegetables or fruits (9), an AC voltage of 180 V or higher and a DC voltage of -180 V or greater than that towards minus side thereof are applied to the food tray (2),

in the second cooling phase of the vegetables or fruits (9), an AC voltage or a DC voltage is applied to the food tray (2), and

in the third cooling phase of the vegetables or fruits (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.

Claim 21 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);  
placing agar jelly (9) on the food tray (2) as the food (9); and  
cooling the agar jelly (9), said cooling comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the agar jelly (9) for 3 to 7 minutes, an AC voltage of 755 to 3500 V and a DC voltage of -7160 to -970 V are applied to the food tray (2),

in the second cooling phase of the agar jelly (9), an AC voltage and a DC voltage are applied to the food tray (2), and

in the third cooling phase of the agar jelly (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.

Claim 22 (new): A method for preserving a food (9) wherein the food (9) is cooled to -18°C or less within 24 hours and the method comprises the steps of:

housing a conductive food tray (2) in a cooling box (1);  
placing agar jelly (9) on the food tray (2) as the food (9); and  
cooling the agar jelly (9), said cooling comprising first cooling, second cooling, and third cooling phases, wherein

in the first cooling phase of the agar jelly (9) for 3 to 7 minutes, an AC voltage of 755 to 3500 V and a DC voltage of -7160 to -970 V are applied to the food tray (2),

in the second cooling phase of the agar jelly (9), an AC voltage or a DC voltage is applied to the food tray (2), and

in the third cooling phase of the agar jelly (9), no voltage is applied to the food tray (2), and the third cooling begins at a temperature of -20°C.